

Desert Locust Bulletin

General situation during March 2024
Forecast until mid-May 2024

WESTERN REGION: CALM

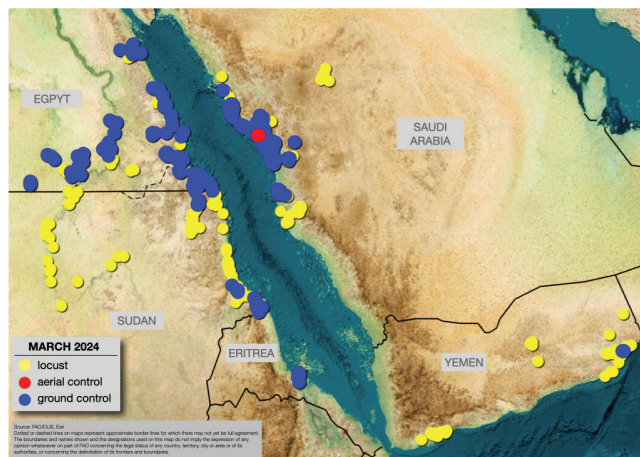
SITUATION. Isolated adults in central **Algeria**; no locusts were seen in **Morocco**.

FORECAST. No significant developments are likely.

CENTRAL REGION: CAUTION

SITUATION. The second-generation hatching, hopper groups, and bands declined along the Red Sea coast of **Sudan** (1 695 ha treated) and **Eritrea** (1 445 ha) as well as **Saudi Arabia** (17 693 ha) although groups of immature adults increased slightly. Locust increased in **Egypt** (19 703 ha) where there were still some first-generation mature swarms. In **Yemen** (153 ha), a few hopper groups and bands were on the southeast coast. No locusts were seen in **Somalia** and **Oman**, and no surveys in **Ethiopia**.

FORECAST. Locusts will decline along the Red Sea and Gulf of Aden coasts as adults and small groups will move to the interior of **Saudi Arabia** and **Yemen** while others may arrive in the irrigated areas of the Nile River in southern **Egypt** and northern **Sudan**. One generation of limited spring breeding will occur due to rain with laying, hatching, and hoppers during April and May. Rains may also occur in the plateau of northwest **Somalia** and eastern **Ethiopia** with perhaps a few limited breeding in the spring. May and June might see a rise in cyclone activity along the Gulf of Aden.



HOPPER BANDS DECLINE

In March, the Desert Locust outbreaks decreased along the Red Sea and Gulf of Aden coast in the Central Region. Egypt, Eritrea, Saudi Arabia, and Sudan had second-generation hoppers, groups, bands, and immature adult groups, but annual vegetation was drying up and control operations decreased by 50% since January. Biopesticides controlled a few small bands on the southeast coast of Yemen. During the forecast, locust populations are expected to decrease along the coasts of the Red Sea and Gulf of Aden. Adult groups in Saudi Arabia will move east towards the interior, while any from Egypt and Sudan will move west to the irrigated areas of the Nile River. Good rain fell in Saudi Arabia during March and is likely to continue there as well as in Yemen during parts of April and May. As a result, one generation of spring breeding will occur with laying, hatching, and hoppers starting in April. Limited breeding is expected due to above-normal rainfall in late April and early May in southeast Iran and southwest Pakistan. Heightened cyclone activity is anticipated in May and June for the Gulf of Aden and the Arabian Sea. No significant developments are likely in the Western Region.

EASTERN REGION: CALM

SITUATION. Isolated mature adults in the northern areas of southwest **Pakistan**.

FORECAST. Above-normal rainfall is likely to occur in late April and early May in southeast **Iran** and southwest **Pakistan** followed by one generation of small-scale breeding. May and June might see a rise in cyclone activity along the Arabian Sea.



Weather & Ecological Conditions in March 2024

Good rain fell in the Arabian Peninsula and parts of southeast Iran and southwest Pakistan.

WESTERN REGION

During March, there was no rain in the northern Sahel of West Africa, throughout the Sahara, and south of the Atlas Mountains from Morocco to Tunisia. Annual vegetation was dry except for a few irrigated areas in the central and southern Sahara of Algeria.

CENTRAL REGION

During March, light rain fell during the first dekad along the eastern side of the highland areas of Yemen near Bayhan, the eastern parts of the Empty Quarter of Saudi Arabia, and in the northern coastal and interior areas of Oman. In the second dekad, moderate rain fell in Saudi Arabia from the central and northern Red Sea coast, mountains, and the interior areas from Hail to Riyadh to the eastern coast. In the third dekad, heavy rain fell along the Red Sea coast near Qunfidah and the Asir Mountain while moderate rain fell in the interior south of Riyadh as well as the eastern highland of Yemen followed by light rains in parts of the interior. In the Horn of Africa, light rain fell during the first and third dekad in parts of the Somali region in the plateau of eastern Ethiopia and parts of northwest Somalia. Annual vegetation was drying out in nearly all places in the winter breeding areas except in the Red Sea coastal areas in Saudi Arabia near Umm Lajj in the north and Jizan in the south as well as Hijaz Mountains near Medinah, while new vegetation appeared in the interior near Hail. Vegetation was green near the irrigation areas along the Nile Valley in southern Egypt and northern Sudan.

EASTERN REGION

During March, good rain fell during the first dekad in the coast and central interior of southeast Iran and southwest Pakistan, followed by the second and third dekads along the southwest coast of Iran. As a result, annual vegetation started to become green in all spring areas.



Area Treated

Control operations increased slightly in March to 40 689 ha compared to 37 212 ha in February.

Egypt	19 703 ha
Eritrea	1 445 ha
Saudi Arabia	17 693 ha
Sudan	1 695 ha
Yemen	153 ha



Desert Locust Situation and Forecast

WESTERN REGION

A few breeding could occur in parts of Northwest Africa in spring, followed by limited breeding in the summer starting about August in the northern Sahel.

ALGERIA

• SITUATION

During March, a few isolated immature and mature solitarious adults were seen in the central Sahara near Adrar (2753N/0017W).

• FORECAST

No significant developments are likely.

BURKINA FASO

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

CHAD

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

LIBYA

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

MALI

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

MAURITANIA

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

MOROCCO

• SITUATION

During March, no locusts were seen south of the Atlas Mountains in Wadi Draa as well as further south.

• FORECAST

No significant developments are likely.

NIGER

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

SENEGAL

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

TUNISIA

• SITUATION

No locusts were reported during March.

• FORECAST

No significant developments are likely.

BENIN, CABO VERDE, CAMEROON, CÔTE D'IVOIRE, GAMBIA, GHANA, GUINEA, GUINEA-BISSAU, LIBERIA, NIGERIA, SIERRA LEONE, AND TOGO

• FORECAST

No significant developments are likely.

CENTRAL REGION

Above-normal rainfall and one generation of spring breeding are expected in the interior of the Arabian Peninsula and perhaps northern Sudan, while abnormal rains may appear on the northern Red Sea coast of Saudi Arabia. May and June might see a rise in cyclone activity along the Gulf of Aden. Expect increased rainfall and favourable breeding conditions this summer in Sudan, Eritrea, and Yemen.

DJIBOUTI

• SITUATION

No locust reports were received in March.

• FORECAST

No significant developments are likely.

EGYPT

• SITUATION

During March, some first-generation mature groups and swarms still appeared on the Red Sea coast mainly in the first week between Abu Ramad (2224N/3624E) and Hurgada (2717N/3347E), subcoastal areas near El Sheikh El Shazly (2412N/3438E), Wadi Allaqi, the interior along the Nile Valley from north of Aswan (2405N/3256E) to Tushka (2247N/3126E), and the southern parts of the Western Desert. Second-generation hoppers, groups, and bands up to 4th instar increased on the coast from the Sudan border north to Shalatyn (2308N/3535E) and subcoastal areas near Abraç (2323N/3451E) and El Sheikh El Shazly as well as a 2nd instar group in the interior north of Tushka. Control operations treated 19 703 ha.

• FORECAST

The second generation will continue to decrease along the southeastern Red Sea coastal areas due to control operations and drying vegetation; consequently, locusts will finish on the Red Sea coast after April. In the southern Nile Valley,

there could be some places near a few irrigated areas where breeding could occur during the spring, while others could move south to the Nile Valley in Sudan.

ERITREA

• SITUATION

During March, locusts declined along the Red Sea coast. A few third and fourth-instar gregarious groups were seen near Zula Gulf and Ghelaelo (1507N/4004E) during the first week. Further north, fledgling and immature adults and groups were seen on the Red Sea coast near Karora (1745N/3820E) and the Sudan border during the first half of the month. Control operations treated 1 445 ha.

• FORECAST

Locust will continue to decline on the Red Sea coast due to control operations and drying vegetation; consequently, no significant developments are likely after April.

ETHIOPIA

• SITUATION

No locusts were reported during March.

• FORECAST

There is perhaps a possibility in the Somali region that a few locusts may appear in the plateau between Dire Dawa east to the Somalia border and possibly breed on a small scale in April.

OMAN

• SITUATION

During March, no locusts were seen in a few places along the Batinah coast, in the northern interior near Adam (2223N/5731E), and in the south from Thumrait (1736N/5401E) to Maziuna (1750N/5239E) and the Yemen border.

• FORECAST

There is a possibility that a few locusts may perhaps appear in the northern interior and the Batinah coast from southeast Yemen and breed during the spring. There is a possibility of cyclone activity along the Arabian Sea starting in May.

SAUDI ARABIA

• SITUATION

During March, second-generation hoppers, groups, and bands decreased after the first dekad along the northern Red Sea coast where early to mid-instar hoppers were present near Umm Lajj (2501N/3716E), mid to late-instar hoppers and fledgling from Yenbo (2405N/3802E) to south of Bader (2346N/3847E) and scattered fledgling south of Masturah (2309N/3851E) and Thuwal (2215N/3906E). Further north, a 1st instar band occurred at the end of the month near Al Wajh (2615N/3627E). Immature adult groups increased slightly during the second half of the month. Mainly isolated mature solitarious adults were seen south of Jeddah (2130N/3910E) and near Mecca (2125N/3949E). In the interior, a few immature gregarious adults were present east of the Hijaz Mountains south of Medinah (2430N/3935E) while immature and mature adults were seen further east about

150 km southwest of Hail (2731N/4141E). Control operations treated 17 693 ha of which 1 000 were by air.

• FORECAST

The second-generation hopper groups and bands will finish as new immature adults and groups continue on the northern Red Sea coast. Although locust numbers should decline, rains are expected to occur and one limited generation of spring breeding should start with laying, hatching and some groups in April and May in the interior from Hail to Riyadh and perhaps parts of the Red Sea coastal areas.

SOMALIA

• SITUATION

During March, no locusts were seen during a few surveys in the escarpment south of Berbera (1028N/4502E), the plateau northeast near Las Anod (0828N/4721E), north and south of Gardo (0930N/4905E) in Puntland, and further south to the west of Galkayo (0646N/4725E) near the Ethiopian border.

• FORECAST

Some rain is likely in the first week of April and perhaps other times during the month. As a result, there is a possibility for one generation of limited breeding during the spring along the northwest plateau, where laying, hatching, and hoppers would occur in April and early May.

SUDAN

• SITUATION

During March, locusts declined along the Red Sea coast. Fledgling finished during the first dekad and immature adults and groups were seen in Tokar (1827N/3741E) and the south from Aqiq (1813N/3811E) to Karora (1745N/3820E). By the end of the month, only scattered immature gregarious adults were found. Scattered mature gregarious adults were seen from Tokar to the northern coast near Oseif (2146N/3651E). Late instar hopper, bands, and immature adult groups were seen in the northern subcoastal areas south of the Egypt border in Wadi Diib. In the northern interior, immature and mature solitary and gregarious adults were seen along the Nile Valley from the Egypt border to Ed Debba (1803N/3057E) during the first dekad. Control operations treated 1 695 ha.

• FORECAST

Locusts will continue to decrease along the Red Sea coast and subcoastal area as adults and perhaps a few small groups are likely to move to the Nile Valley for limited spring breeding near irrigated areas. Scattered adults and perhaps a few groups from southern Egypt could arrive along the Nile Valley in the north.

YEMEN

• SITUATION

During March, isolated and scattered immature and mature solitary adults were present along the southeast coast of the Al Maharah province between Sayhut (1512N/5115E) to Al Ghaydah (1612N/5210E) as well as a few places in the interior near Shehan (1746N/5229E) close to Oman. A few scattered, groups and bands of third instar hoppers to fledgling were

seen in one area near the sea for about 10 km just outside of Al Ghaydah where control operations treated 153 ha using biopesticides during the first two weeks. Isolated immature scattered adults were found in the Hadhramaut Valley near Sayun (1559N/4844E) and in the northern plateau. On the southwest coast, mainly isolated immature adults were seen between Am Rija (1302N/4434E) and Zinjibar (1306N/4523E). The situation along the Red Sea coast is unknown due to no surveys.

• FORECAST

During early April, scattered locusts will continue along the Gulf of Aden coast, and some will move to the interior close to Bayhan, Al Hazm, Shabwah, Hadhramaut Valley, and the northern plateau near Thamud and the Empty Quarter, where rains are expected. One generation of limited spring breeding will occur with laying, hatching, and hoppers. In May, there is a possibility of cyclone activity along the Gulf of Aden.

BAHRAIN, DEMOCRATIC REPUBLIC OF THE CONGO, IRAQ, ISRAEL, JORDAN, KENYA, KUWAIT, LEBANON, PALESTINE, QATAR, SOUTH SUDAN, SYRIAN ARAB REPUBLIC, TÜRKIYE, UGANDA, UNITED ARAB EMIRATES, AND UNITED REPUBLIC OF TANZANIA

• FORECAST

No significant developments are likely.

EASTERN REGION

During the spring, increased temperature and above-normal rainfall are expected during the last week of April and first week of May where one generation of small-scale breeding will occur in southeast Iran and southwest Pakistan. The Arabian Sea may experience heightened cyclone activity in May and June. Above-normal rains could occur in summer breeding areas of the Indo-Pakistan border.

AFGHANISTAN

• SITUATION

No locust reports were received in March.

• FORECAST

No significant developments are likely.

INDIA

• SITUATION

During March, no locusts were seen in Rajasthan and Gujarat.

• FORECAST

May and June might see a rise in cyclone activity along the Arabian Sea.

ISLAMIC REPUBLIC OF IRAN

• SITUATION

During March, no locusts were seen in a few places of the interior of the southeast near Pishin (2605N/6145E) and Jaz Murian Basis, northeast near Birjand (3252N/5913E), east of Shiraz (2936N/5234E), and on the southeast coast near Jask (2540N/5746E) and southwest coast near Abadan (3021N/4817E).

• FORECAST

Above-normal rainfall is likely to occur in late April and early May in the southeast coast and interior areas followed by one generation of small-scale breeding. May and June might see a rise in cyclone activity along the Arabian Sea.

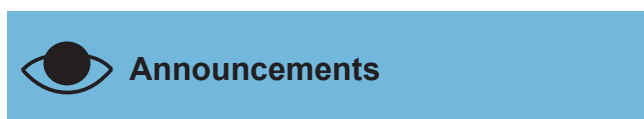
PAKISTAN

• SITUATION

No locusts were reported during March except for isolated mature adults in one place along the northern areas of Baluchistan east of Dalbandin (2856N/6430E).

• FORECAST

Above-normal rainfall is likely to occur in late April and early May in southwest Baluchistan followed by one generation of small-scale breeding. May and June might see a rise in cyclone activity along the Arabian Sea.



Locust warning levels

A colour-coded scheme indicates the alert level, perceived risk, or threat of current Desert Locust infestations to crops, and appropriate response:

- **Green** – calm situation (low alert); no threat to crops (*maintain regular monitoring*)
- **Yellow** – cautious situation (moderate alert); potential threat to crops (*increased vigilance, control may be needed*)
- **Orange** – serious situation (high alert); threat to crops (*survey and control must be undertaken*)
- **Red** – dangerous situation (very high alert); significant threat to crops (*intensive survey and control operations must be conducted*)

The scheme is applied to the Locust Watch web page and the monthly bulletins and updates.

Locust reporting

RAMSES data. Countries should connect to the Internet and backup the RAMSES database whenever data are added or changed; do not wait until the end of the month.

Bulletins. Affected countries are encouraged to prepare decadal, fortnightly, or monthly bulletins that summarize and analyze the situation, and share them with other countries.

Reporting. All information should be sent by e-mail to the FAO Desert Locust Information Service (eclo@fao.org and faodlislocust@gmail.com). Reports received by the first day of the new month will be included in the FAO Desert Locust Bulletin; otherwise, they will not appear until the following month. Reports should be sent even if no locusts were found or if no surveys were conducted.

eLocust3 digital tools

In addition to the original eLocust3 tablet, FAO has three free tools for data collection in the field:

- eLocust3m – a smartphone app for survey and control data, developed with PlantVillage (Android: play.google.com; iOS: appl.apple.com; how-to-use videos: tiny.cc/eL3mVideos)
- eLocust3g – a GPS app for emergencies, developed with Garmin (tiny.cc/eLocust3g)
- eLocust3w – an Internet form for emergencies, developed in Kobo (tiny.cc/eLocust3w)

The geo-referenced data collected by these tools feed into FAO's global early warning system and are critical for real-time monitoring, near-instant analysis, and planning field operations in each country.

[www.fao.org/ag/locusts/en/activ/2573/eL3suite/index.html]

Standard Operating Procedures (SOPs)

FAO has developed pocket-sized SOPs for use on the field of Desert Locust biology, survey, and control, including instructions on how to use eLocust3 tools, that are available in different languages.

[www.fao.org/ag/locusts/en/publicat/gl/sops/index.html]

Community awareness

As communities have an important role to play in Desert Locust management, FAO has developed:

- Posters – six simple, easy-to-understand posters, providing basic messaging on pesticide containers, safety measures, pesticide exposure, farmer advice, Desert Locust, and following instructions (www.fao.org/ag/locusts/en/publicat/2581/index.html)
- Animation – a simple SWABO animation for all readers to learn about the world's most dangerous migratory pest (www.youtube.com/watch?v=3TOhuA-v1m4)

Publicly available locust data

Desert Locust survey and control data are available for research and other non-commercial purposes:

- FAO Locust Hub (locust-hub-hqfao.hub.arcgis.com/)
- FAO Hand-in-Hand (data.apps.fao.org/)

2024 calendar

- **CLCPRO/CRC.** Regional workshop on spraying techniques and environmental monitoring, Agadir, Morocco (14–19 April)
- **CRC/CLCPRO.** Drone for control field trial, Jeddah, Saudi Arabia (TBC)



Glossary of terms

The following special terms are used in the Desert Locust Bulletin when reporting locusts:

Non-gregarious adults and hoppers

Isolated (few)

- very few present and no mutual reaction occurring
- 0–1 adult/400 m foot transect (or less than 25/ha)

Scattered (some, low numbers)

- enough present for mutual reaction to be possible but no ground or basking groups seen
- 1–20 adults/400 m foot transect (or 25–500/ha)

Group

- forming ground or basking groups
- 20+ adults/400 m foot transect (or 500+/ha)

Adult swarm and hopper band sizes

Very small

- swarm: less than 1 km²
- band: 1–25 m²

Small

- swarm: 1–10 km²
- band: 25–2,500 m²

Medium

- swarm: 10–100 km²
- band: 2,500 m² – 10 ha

Large

- swarm: 100–500 km²
- band: 10–50 ha

Very large

- swarm: 500+ km²
- band: 50+ ha

Rainfall

Light

- 1–20 mm

Moderate

- 21–50 mm

Heavy

- more than 50 mm

Summer rains and breeding areas

- July–September/October
- Sahel of West Africa, Sudan, western Eritrea; Indo-Pakistan border

Winter rains and breeding areas

- October–January/February
- Red Sea and Gulf of Aden coasts; northwest Mauritania, Western Sahara

Spring rains and breeding areas

- February–June/July
- Northwest Africa, Arabian Peninsula interior, Somali plateau, Iran/Pakistan border

Other reporting terms

Breeding

- The process of reproduction from copulation to fledging.

Recession

- Period without widespread and heavy infestations by swarms.

Remission

- Period of deep recession marked by the complete absence of gregarious populations.

Outbreak

- A marked increase in locust numbers due to concentration, multiplication and gregarisation which, unless checked, can lead to the formation of hopper bands and swarms.

Upsurge

- A period following a recession marked initially by a very large increase in locust numbers and contemporaneous outbreaks followed by the production of two or more successive seasons of transient-to- gregarious breeding in complimentary seasonal breeding areas in the same or neighbouring Desert Locust regions.

Plague

- A period of one or more years of widespread and heavy infestations, the majority of which occur as bands or swarms. A major plague exists when two or more regions are affected simultaneously.

Decline

- A period characterised by breeding failure and/or successful control leading to the dissociation of swarming populations and the onset of recessions; can be regional or major.

Regions

Western

- Locust-affected countries in West and North-West Africa: Algeria, Chad, Libya, Mali, Mauritania, Morocco, Niger, Senegal, Tunisia; during upsurges and plagues only: Benin, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierre Leone and Togo

Central

- Locust-affected countries along the Red Sea and Gulf of Aden: Djibouti, Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Somalia, Sudan, Yemen; during upsurges and plagues only: Bahrain, D.R. Congo, Iraq, Israel, Jordan, Kenya, Kuwait, Lebanon, Palestine, Qatar, South Sudan, Syria, Tanzania, Turkey, UAE and Uganda

Eastern

- Locust-affected countries in South-West Asia: Afghanistan, India, Iran and Pakistan



Useful tools and resources

FAO/DLIS Locust Watch. Information, maps, activities, publications, archives, FAQs, links
<http://www.fao.org/ag/locusts>

IRI RFE. Rainfall estimates every day, dekad and month
http://iridl.ideo.columbia.edu/maproom/.Food_Security/.Locusts/index.html

JRC Greenness maps. Dynamic maps of green vegetation evolution every dekad
<https://locust.cgls.dev/s/6ddC96njJcRxZy7>

Lobelia Soil moisture maps. Dynamic maps of soil moisture detected every dekad
<https://fao-locust.lobelia.earth>

NASA WORLDVIEW. Satellite imagery in real time
<https://worldview.earthdata.nasa.gov>

NOAA. HYSPLIT locust forecast trajectory model
<https://locusts.arl.noaa.gov>

Windy. Real time rainfall, winds and temperatures for locust migration
<http://www.windy.com>

Zoom Earth. Real time rainfall, winds and temperatures for locust migration
<https://zoom.earth>

eLocust3 suite. Digital tools for data collection in the field (mobile app, web form, GPS)
<http://www.fao.org/ag/locusts/en/activ/DLIS/eL3suite/index.html>

eLocust3 training videos. A set of 15 introductory training videos are available on YouTube
<https://www.youtube.com/playlist?list=PLf7Fc-oGpFHEdV1jAPaF02TCfpcnYoFQT>

RAMSESV4 training videos. A set of basic training videos are available on YouTube
<https://www.youtube.com/playlist?list=PLf7Fc-oGpFHGyzXqE22j8-mPDhhGNq5So>

RAMSESV4 and eLocust3. Installer, updates, videos, inventory and support
<https://sites.google.com/site/rv4elocust3updates/home>

FAOLocust Facebook. Information exchange using social media
<http://www.facebook.com/faolocust>

FAOLocust Slideshare. Locust presentations and photos
<http://www.slideshare.net/faolocust>

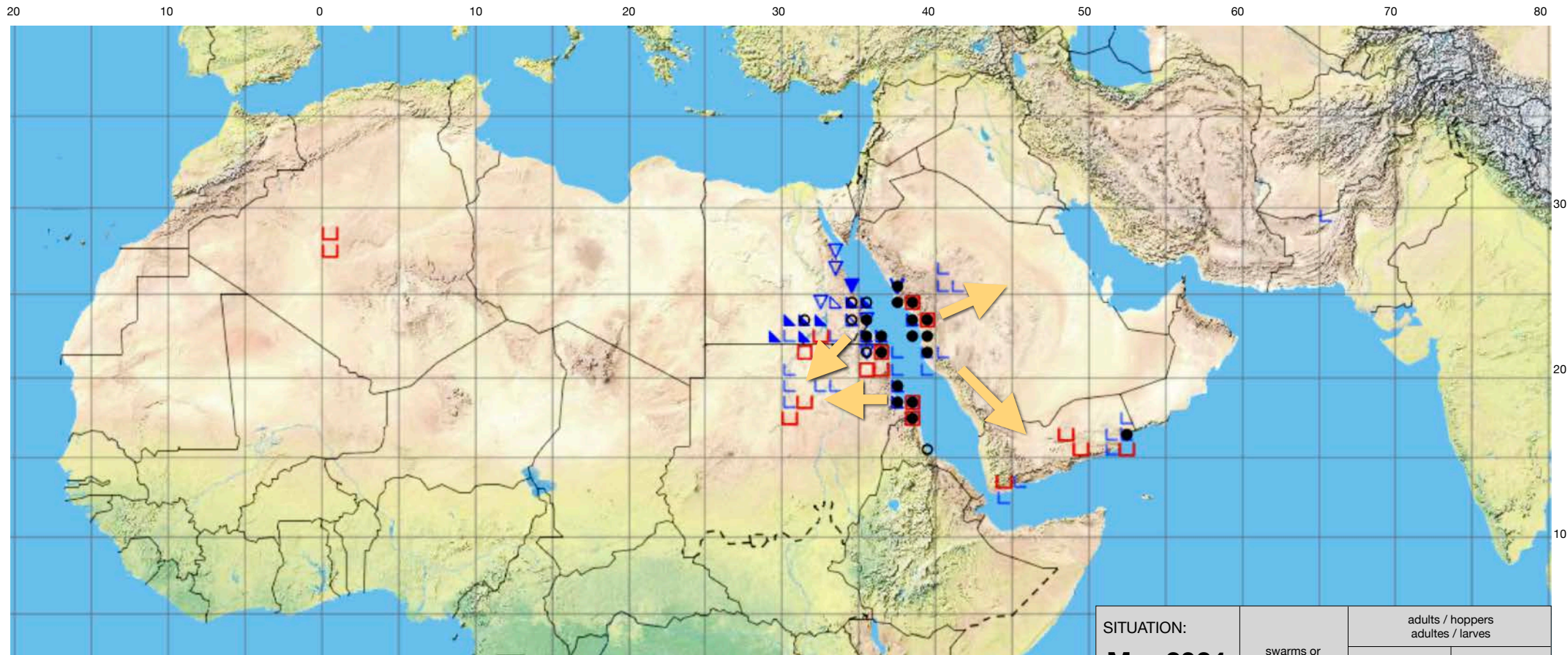
FAOLocust Twitter. The very latest updates posted as X/tweets
<http://www.twitter.com/faolocust>

FAO/ESRI Locust Hub. Desert Locust maps and data download, and emergency response progress
<https://locust-hub-hqfao.hub.arcgis.com>



Desert Locust Summary

Criquet pèlerin – Situation résumée



FORECAST TO : PREVISION AU :	LIKELY PROBABLE	POSSIBLE POSSIBLE
15.05.24		
favourable breeding conditions conditions favorables à la reproduction		
major swarm(s) essaim(s) important(s)		
minor swarms(s) essaim(s) limité(s)		
non swarming adults adults non essaimant		

SITUATION: Mar 2024 mar 2024	swarms or hopper bands essaims ou bandes larvaires	adults / hoppers adultes / larves	
		in groups en groupes	density low/unknown densité faible/inconnue
immature adults adultes immatures			
mature or partially mature adults adultes matures ou partiellement matures			
adults, maturity unknown adultes, maturité inconnue			
egg laying or eggs pontes ou œufs			
hoppers larves			
hoppers & adults (combined example) larves et adultes (symboles combinés)			